

CLAIMS:

1. A magneto-optical recording medium comprising:
 - a substrate layer for supporting other layers;
 - a magnetic storage layer for information storage;
 - a magnetic reproduction layer for reproduction of the information of the magnetic storage layer for reading of the information;
 - a separation layer inter-located between the magnetic storage layer and the magnetic reproduction layer; and
 - at least one metal layer adjacent to the magnetic reproduction layer.
- 10 2. A magneto-optical recording medium as claimed in claim 1 wherein one of the at least one metal layers is inter-located between the storage layer and the reproduction layer.
3. A magneto-optical recording medium as claimed in claim 1 wherein one of the at least one metal layers is adjacent the reproduction layer in the opposite direction of the magnetic storage layer.
- 15 4. A magneto-optical recording medium as claimed in claim 1 wherein the magneto optical storage medium comprises two metal layers adjacent to the magnetic reproduction layer on each side of the magnetic reproduction layer.
- 20 5. A magneto-optical recording medium as claimed in claim 1 further comprising a reflection layer inter-located between the substrate and the storage layer.
6. A magneto-optical recording medium as claimed in claim 5 wherein:
 - 25 the reflection layer is located on the substrate layer;
 - the first dielectric layer is located on the reflection layer;
 - the magnetic storage layer is located on the first dielectric layer;
 - the separation layer is located on the magnetic storage layer;
 - the metal layer is located on the separation layer;

the magnetic reproduction layer is located on the metal layer;
a second dielectric layer is located on the magnetic reproduction layer; and
a cover layer is located on the second dielectric layer.

- 5 7. A magneto-optical recording medium as claimed in claim 5 wherein:
the reflection layer is located on the substrate layer;
a first dielectric layer is located on the reflection layer;
the magnetic storage layer is located on the first dielectric layer;
the separation layer is located on the magnetic storage layer;
- 10 the magnetic reproduction layer is located on the separation layer;
the metal layer layers is located on the magnetic reproduction layer;
a second dielectric layer is located on the metal layer; and
a cover layer is located on the second dielectric layer.
- 15 8. A magneto-optical recording medium as claimed in claim 5 wherein:
the reflection layer is located on the substrate layer;
a first dielectric layer is located on the reflection layer;
the magnetic storage layer is located on the first dielectric layer;
the separation layer is located on the magnetic storage layer;
- 20 a first metal layer of the two metal layers is located on the separation layer;
the magnetic reproduction layer is located on the first metal layer;
a second metal layer of the two metal layers is located on the magnetic
reproduction layer;
- 25 a second dielectric layer is located on the second metal layer; and
a cover layer is located on the second dielectric layer.
9. A magneto-optical recording medium as claimed in claim 1 wherein the metal
of the at least one metal layer comprises a transition metal.
- 30 10. A magneto-optical recording medium as claimed in claim 9 wherein the metal
of the at least one metal layer comprises metal chosen from the group consisting of:
a. Platinum
b. Palladium
c. Tantallum

- d. Zirconium
- e. Neobium
- f. Molybdenum
- g. Ruthenium
- 5 h. Rhodium
- i. Copper
- j. Silver
- k. Gold; and
- l. Tungsten.

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11. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer has a thickness of less than 2 nm.

12. A magneto-optical recording medium as claimed in claim 1 wherein the 15 separation layer is a dielectric layer.

13. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased Kerr rotation.

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14. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased heat dissipation.

25 15. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased reflectivity.

16. A magneto-optical recording medium as claimed in claim 1 wherein the 30 magneto-optical recording medium is a domain expansion medium.

17. A magneto-optical recording medium as claimed in claim 1 wherein the magneto-optical recording medium is a Magnetic Amplifying Magneto-Optical System (MAMMOS) medium.

18. A magneto-optical recording medium as claimed in claim 17 wherein the magneto-optical recording medium is an AC MAMMOS medium.

5 19. A magneto-optical recording medium as claimed in claim 17 wherein the magneto-optical recording medium is a ZF MAMMOS medium.

20. A magneto-optical recording medium as claimed in claim 16 wherein the magneto-optical recording medium is a Domain Wall Displacement Detection (DWDD)
10 medium.